

REMARKS

Claims 1-24 remain in this application. Claims 1, 5, 7, 11, 13-15, 19, 21, and 24 have been amended. No new matter has been added. Reconsideration is respectfully requested.

Claims 11, 13-14, and 24 were rejected under 35 U.S.C. §112 second paragraph as being indefinite for use of the word “substantially.” Applicant has amended independent claims 13 and 24, and dependent claim 11 to remove this word. In view of the amendments, Applicant respectfully submits that amended claims 11, 13, and 24, as well as claim 14 which depends from claim 13, meet the requirements of 35 U.S.C. §112.

Claims 1-24 were rejected under 35 U.S.C. §102(e), as being unpatentable over Moyal (U.S. Patent 6,445,680 B1). Applicant has amended independent claims 1, 13, 15, and 24 to sharpen the differences of the claims over the cited art. Claims 1, 13, 15, and 24 as amended incorporate additional substantive language. The additional substantive language finds support on page 13, lines 16 – 21, referring to a number-of-requests field in Fig. 2A of the specification, and also in Table I, which describes tasks performed by the logic circuitry. In claims 13 and 24 the term “number” (of clients) has been amended to “quantity” to clarify the difference between the count of requests and the count of clients. Applicant has amended the language of dependent claims 5, 7, 11, 14, 19, and 21 to clarify the claims and to agree with amended independent claims 1, 13, and 15.

Claims 1 and 13 as amended recite an arbiter and a method for arbitrating between clients requesting access to a computing resource. A memory comprises a request register which records a number of access requests for each client. The memory also comprises a next-client pointer, which records an identification of a client making a subsequent access request, so as to form a linked list of the requests. Logic circuitry updates the linked list in response to the numbers of access requests. Based on the linked list, a decision is made as to the client in the list that is given access to the resource. By recording and updating the number of requests from clients as access is provided, the amount of access provided may be tracked, and the linked list may be updated as necessary. Furthermore, recording the number of requests

allows arbitration to be performed on a non-least recently used basis.

Moyal describes an arbiter which receives flags from respective source queues, indicating if each queue is empty or not (column 6 line 63 – column 7 line 4). The arbiter also receives “backpressure” information which is a single bit for each source, showing whether a source is permitted to transmit data or not (column 5 lines 7-11 and column 7 lines 18-21). A “Non Empty Source Queue” (NESQ) linked list is built which uses the flags and the backpressure bits (Fig. 5A and Fig. 6A, column 7 line 43 – column 8 line 11) to decide which source on the list is to transmit data. As described by Moyal (column 4 lines 6-22, column 6 lines 28-37 and 46-49) the NESQ list is a least recently used (LRU) list.

Since the list maintained by Moyal is an LRU list, there is no point in Moyal tracking a number of requests in his sources, and careful inspection of the whole of Moyal’s disclosure shows that Moyal neither teaches nor suggests recording the number of requests, as is required by amended claims 1 and 15. Claims 1 and 15 are therefore believed to be patentable over the cited art.

In view of the patentability of independent claims 1 and 15, claims 2-12 and claims 16-23, which respectively depend from these independent claims, are also believed to be patentable.

Claims 13 and 24 as amended recite an arbiter and a method for arbitrating between clients requesting access to a computing resource. A memory comprises a request register which records a number of access requests for each client. Logic circuitry, of a size independent of the number of clients requesting access to the resource, decides, responsive to the number of access requests, which client accesses the resource. Providing logic circuitry that has a size independent of the number of clients enables arbitration to be performed regardless of the number of clients, as well as regardless of the number of access requests.

In rejecting claims 13 and 24, the Examiner treated the claims as having substantially the same limitations as claims 1 and 11 in combination. In rejecting claim 11, the Examiner stated that “Moyal discloses an arbiter ... wherein the logic circuitry is of a size that is substantially independent of the number of clients served by the arbiter.” Applicant respectfully disagrees with the Examiner’s statement.

Moyal's disclosure is directed towards operation of an arbiter, and there is very little discussion of physical implementation. Careful inspection of the whole of Moyal's disclosure shows that the only references to physical implementation are in regard to the need for additional circuitry to perform shifting the contents of a source index queue of a prior art LRU mechanism, and that "As the number of source queues grow, the size of the index queue increases, thus requiring additional ... silicon resources." (Column 3 line 64 – column 4 line 3). This teaches in opposition to the requirements of claims 13 and 24, which require that logic circuitry is of a size independent of the number of clients. Thus, Moyal neither teaches nor suggests logic circuitry of a size independent of the number of clients, as is required by claim 13 and 24. Furthermore, as argued above with respect to claims 1 and 15, Moyal neither teaches nor suggests recording a number of access requests for each client, as is also required by claims 13 and 24. Claims 13 and 24 are therefore believed to be patentable over the cited art.

In view of the patentability of independent claim 13, claim 14, which depends from claim 13, is also believed to be patentable.

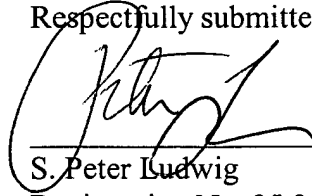
Applicant has studied the additional prior art made of record by the Examiner. Applicant believes the amended claims in the present patent application to be patentable over these references, as well, whether taken alone or in combination with other references.

Applicant believes that the above amendments and remarks are fully responsive to all of the grounds of rejection raised by the Examiner.

36321A1

In view of these amendments and remarks, applicant respectfully submits that all of the claims currently pending in the present application are in order for allowance. Notice to this effect is respectfully requested.

Respectfully submitted,



---

S. Peter Ludwig  
Registration No. 25,351  
Attorney for Applicant

Darby & Darby P.C.  
805 Third Avenue  
New York, NY 10022  
(212) 527-7700